

WHAT IS CLAIMED IS:

1. A method for communicating information in a network having a plurality of nodes, comprising:
 - providing a frame for storing information, the frame identified by a frame type;
 - determining the frame type of the frame;
 - in response to determining the frame type, scheduling periodic transmission of the frame from a node in the network; and
 - transmitting the frame at the scheduled time.
2. The method of Claim 1, wherein determining the frame type further comprises determining the maximum size of the frame.
3. The method of Claim 1, wherein determining the frame type further comprises determining the rate of transmission of the frame.
4. The method of Claim 1, wherein scheduling transmission of the frame comprises comparing a frame priority to the priority of a plurality of additional frames.
5. The method of Claim 2, wherein determining the maximum size of the frame comprises reading the maximum size of the frame from a list, the list storing possible frame types and the maximum size of each possible frame type.

6. The method of Claim 3, wherein determining the rate of transmission of the frame comprises reading the rate of transmission of the frame from a list, the list storing possible frame types and the rate of transmission of each possible frame type.

7. A method for communicating information in a network having a plurality of nodes, comprising:

providing a first frame for storing information, the frame having a first maximum size;

providing a second frame for storing information, the frame having a second maximum size, the first size being unequal to the second size;

determining the first maximum size and the second maximum size;

in response to determining the first maximum size and the second maximum size, scheduling periodic transmission of the first and second frames beginning at respective first and second scheduled times;

transmitting the first frame at the first scheduled time; and

transmitting the second frame at the second scheduled time.

8. The method of Claim 7, wherein the first frame has a first frame type and the second frame has a second frame type and determining the first maximum size and the second maximum size comprises comparing the first and second frame types to a predefined set of frame types.

9. The method of Claim 7, wherein providing the first frame comprises providing a first frame having a first rate of transmission and wherein providing the second frame comprises providing the second frame having a second rate of transmission, the first rate being unequal to the second rate, and further comprising determining the first and second rates and wherein scheduling periodic transmission of the first and second frames further comprises scheduling periodic transmission in response to determining the first and second rates.

10. The method of Claim 9, wherein the first frame has a first frame type and the second frame has a second frame type and determining the first and second rates comprises comparing the first and second frame types to a predefined set of frame types.

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11. A method for communicating information in a network having a plurality of nodes, comprising:

providing a first frame for storing information and a second frame for storing information;

repeatedly transmitting the first frame to a plurality of nodes in the network at a first rate; and

repeatedly transmitting the second frame to a plurality of nodes in the network at a second rate, the first rate being unequal to the second rate.

12. The method of Claim 11, further comprising providing a third frame for storing information, and transmitting the third frame to a plurality of nodes in the network only when the repeated transmission of the first and second frames at the first and second rates leaves available bandwidth for transmission of the third frame.

13. The method of Claim 11, wherein repeatedly transmitting the first frame at a first rate comprises transmitting the first frame at a rate specified in a list stored in memory.

14. The method of Claim 11, wherein the first and second frames have respective priorities and further comprising initially transmitting the first frame before the second frame if the first frame has a higher priority than the second frame.

15. A method for initiating transmission of a sequence of related data frames in a network having a plurality of nodes serially interconnected in a loop topology, each frame identified by one of a plurality of type designations, comprising:

building a transmission queue for frames of each designated type, the queue organized by frame type and containing pointers to the header of each sequence of frames;

building a transmission schedule table for transmission times for sequences of frames of each designated type; and

transmitting in response to the transmission schedule table a sequence of frames of a first designated type to each of the serially interconnected nodes of the network when an entry exists for a given designated type of frame.

16. The method for initiating transmission of a plurality of data frames as in Claim 15 further comprising determining availability of the serially interconnected nodes of the network for transmission of data frames of a given designated type.

17. The method for initiating transmission of a plurality of data frames as in Claim 16 wherein determining availability of the nodes of the network further comprises determining availability of the nodes of the network for transmission of data frames of a second designated type upon completion of transmission of data frame of a selected designated type.

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18. The method for initiating transmission of a plurality of data frames as in Claim 15 further comprising storing frames of data by frame type for later transmission to the plurality of serially interconnected nodes.

19. The method for initiating transmission of a plurality of data frames as in Claim 15 wherein building a transmission queue further comprises building a queue for isochronous frame types and building a queue for asynchronous frame types.

20. The method for initiating transmission of a plurality of data frames as in Claim 15, wherein transmitting in response to the transmission schedule further comprises transmitting a sequence of frames of a second type to each of the plurality of serially interconnected nodes during a sample window based on available bandwidth.

21. The method for initiating transmission of a plurality of data frames as in Claim 15, wherein transmitting in response to the transmission schedule table further comprises transmitting a sequence of frames of additional designated types at a frame type start time for each additional frame type at a predetermined rate during an allocated portion of a sample window for each of the additional frame types.

22. A method for communicating information stored in a frame in a network having a plurality of nodes, comprising:

identifying the frame type of a frame;

scheduling a time for periodic transmission of the frame from a node in the network in response to identifying the frame type; and

transmitting the frame at the scheduled time.

23. The method of Claim 22, further comprising determining the frame size.

24. The method of Claim 22, wherein identifying the frame type further comprises determining the rate of transmission of the frame.

25. The method of Claim 22, wherein scheduling a time for transmission of the frame comprises comparing a frame priority to the priority of a plurality of additional frames.

26. The method of Claim 23, wherein determining the frame size comprises reading the size of the frame from a list, the list storing possible frame types and the size of each frame type.

27. The method of Claim 24, wherein determining the rate of transmission of the frame comprises reading the rate of transmission of the frame from a list, the list storing frame types and the rate of transmission of each frame type.

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28. A method for initiating transmission of a plurality of data frames in a network having a plurality of nodes serially interconnected in a loop topology, each frame identified by one of a plurality of type designations, comprising:

storing frames of data by frame type for later transmission to the plurality of nodes;

storing a transmission schedule table having a first queue for isochronous frames and a second queue for asynchronous frames, wherein the stored transmission schedule table comprises a timer value for each isochronous frame indicating a window for transmission of the isochronous frames, a delta time indicating the frequency of transmission of an isochronous frame, and a sequence size for each isochronous frame; and

determining transmission time for a sequence of frames of a first type in response to the stored transmission schedule table to initiate synchronous transmission of frames of the first type to each of the serially interconnected nodes.

29. The method of Claim 28, wherein the stored transmission schedule table comprises a transmission time increment indicating a next subsequent transmission time for an additional frame type.

30. The method of Claim 28, further comprising detecting available bandwidth between transmissions of the plurality of a first designation type for scheduling transmission of frames of a second designation type.

31. The method of Claim 28 further comprising initiating the transmission of a new sequence of frames of a selected designated type without data.

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32. A method for initiating transmission of a plurality of data frames in a network having a plurality of nodes serially interconnected in a loop topology, each frame identified by one of a plurality of type designations, comprising:

storing frames of data by frame type for later sequential transmission to the plurality of serially interconnected nodes;

storing a transmission schedule table having a first queue for isochronous frames, and a second queue for asynchronous frames wherein the transmission schedule table comprises a timer value for each isochronous frame indicating a window for transmission of the isochronous frames, a delta time indicating the frequency of transmission of an isochronous frame, and a sequence size for each isochronous frame; and

initiating transmission of a sequence of frames of a first frame type at a frame type start time at a predetermined rate during an allocated portion of a sample window to each of the plurality of serially interconnected nodes.

33. The method of Claim 32 further comprising detecting available bandwidth between transmissions of the plurality of isochronous frames to each of the serially interconnected nodes for scheduling transmission of asynchronous frames to each of the nodes.

34. A method for initiating transmission of a plurality of frames in a network having a plurality of serially interconnected nodes, each frame identified by one of a plurality of type designations, comprising:

storing frames of data by frame type for later sequential transmission to the plurality of serially interconnected nodes;

storing a transmission schedule table and a queue for each designation type of frame wherein the transmission schedule table comprises a timer value for each frame type indicating a window for transmission of a frame type, a delta time indicating the frequency of transmission of a frame type, and a sequence size for each frame type;

determining transmission time for frames in response to the transmission schedule to initiate transmission of data frames; and

initiating transmission of a sequence of frames of a first frame type at a frame type start time at a predetermined rate during an allocated portion of a sample window to each of the plurality of serially interconnected nodes.

35. The method of Claim 34, further comprising initiating transmission of a sequence of frames of a second type to each of the plurality of serially interconnected nodes during a sample window based on available bandwidth.

36. The method of Claim 34, further comprising initiating transmission of a sequence of frames of additional frame types at a frame type start time for each additional frame type at the predetermined rate during an allocated portion of the sample window designated for each of the additional frame types.